Project Name: The Southeastern Universities Research Association (SURA) Coastal Ocean Observing and Prediction (SCOOP) Program

Date Initiated: The SCOOP Program was initiated in May 2003 with funds provided by ONR.

Recipient Institution: The Southeastern Universities Research Association

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Project Web Site: http://www1.sura.org/3000/3300_Coastal.html or http://www.Openioos.org

Brief Project Summary:

The overarching goal of the SURA Coastal Ocean Observing and Prediction (SCOOP) Program is to create a service oriented architecture (SOAP) to advance the science of environmental prediction and hazard planning for our nation's coasts. The SCOOP approach to accomplish this goal is to integrate diverse efforts in coastal ocean observing and modeling and enable a virtual community to share tools, resources, and ideas. In addition to serving as an integrating component of the Integrated Ocean Observing System (IOOS), it is also intended that this program will provide a portable suite of methodologies for managing and visualizing observed and modeled information on coastal phenomena.

In September of FY2004 the SCOOP program received funds from NOAA that were applied to four primary initiatives: 1) developing and implementing data standards; 2) creating a "data grid" demonstration of interoperability; 3) deploying a "model grid" demonstration of coupled modeling; and 4) community building through support of regional coastal ocean observing system (RCOOS) pilot projects and ocean education. These projects are intended to merge into a seamlessly integrated system that will support the implementation of the Ocean.US DMAC plan published in March 2005 (http://dmac.ocean.us/dacsc/imp_plan.jsp).

Partners:

The FY04/05 SCOOP program initiatives involved researchers in Ocean Science and Computer Science at Texas A&M (TAMU), the University of Alabama at Huntsville (UAH), the University of Miami (UM), The Virginia Institute of Marine Science (VIMS), Louisiana State University (LSU), the University of North Carolina (UNC), the University of Florida (UF), the Mid-Atlantic Coastal Ocean Observing Regional Association (MACOORA), the South East Coastal Ocean Observing Regional Association (SECOORA), the Gulf of Maine Ocean Observing System (GoMOOS), the Gulf Coastal Ocean Observing System (GCOOS), and the Consortium for Oceanographic Research and Education (CORE).

Accomplishments to Date:

The SCOOP partners listed above are committed to creating a broadly accessible, open access, distributed laboratory staffed by university researchers working with Federal agencies and the private sector. The network of shared resources enabled by the developing SCOOP SOA will broaden access to data, models, computational resources, and other tools. This community approach will facilitate the transition of new technology and new knowledge from the realm of research to the operational world of practical applications. The SCOOP SOA is being implemented in an incremental fashion, where design requirements and objectives are reviewed on a yearly basis. The accomplishments of the SCOOP Program to date include the progress to various degrees on the following prototype activities:

- Application of Open Geospatial Consortium web services – SURA has supported (largely through funding from the Office of Naval Research, and will additional support from the NOAA Coastal Services Center), implementation of OGC-compliant Web services in its implementation of www.OpenIOOS.org.
- The prototyping of a SCOOP Catalog initially populated with metadata descriptions of SCOOP model results and related observational data. The search interface allows users to browse through data collections. SCOOP Catalog Services support automated access to the Catalog for data archives and other applications.
- In June 2005, a Data Registry application was released to the SCOOP partners. This registry guides data producers through the entry of high-level information about each data collection.
- SCOOP Archives serve as a repository for model output with their own directory that coordinates with the metadata catalog and services retrospective analyses. (Lead institutions: TAMU & LSU)
- Coastal Models used in the ensemble prediction system include storm surge models (ADCIRC, ELCIRC, CH3D) and wind-wave models (WW3, WAM and SWAN). (Lead institutions: UNC, UM, UF, VIMS, LSU, GoMOOS, & BIO[1]);
- Verification services that allow real-time aggregation of buoy and NOS data for visualization and model-data comparisons. They include many outside data sources. (Lead institutions: LSU, UM, & GoMOOS);
- Observational/Initialization Winds including real-time winds and synthesized hurricane wind ensembles are used to drive the various surge and wave models. (Lead institutions: UF, UM).
- Grid Middleware Demonstrations aiding the development and testing of Grid middleware solutions that will be transitioned to the SCOOP Architecture. (Lead institutions: LSU, UNC, & UF).
- Results from ocean-prediction models are showcased on the OpenIOOS portal (www.openioos.org) as part of the IOOS Interoperability Test Bed showcasing the Southeast Region of the U.S. Using this test bed, a user can visualize real-time and historical output in either a two-dimensional GIS-compatible map or a graphical comparison of predicted and observed water level.

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[1] Bedford Institute of Oceanography is a GoMOOS subcontractor for the SCOOP Program.